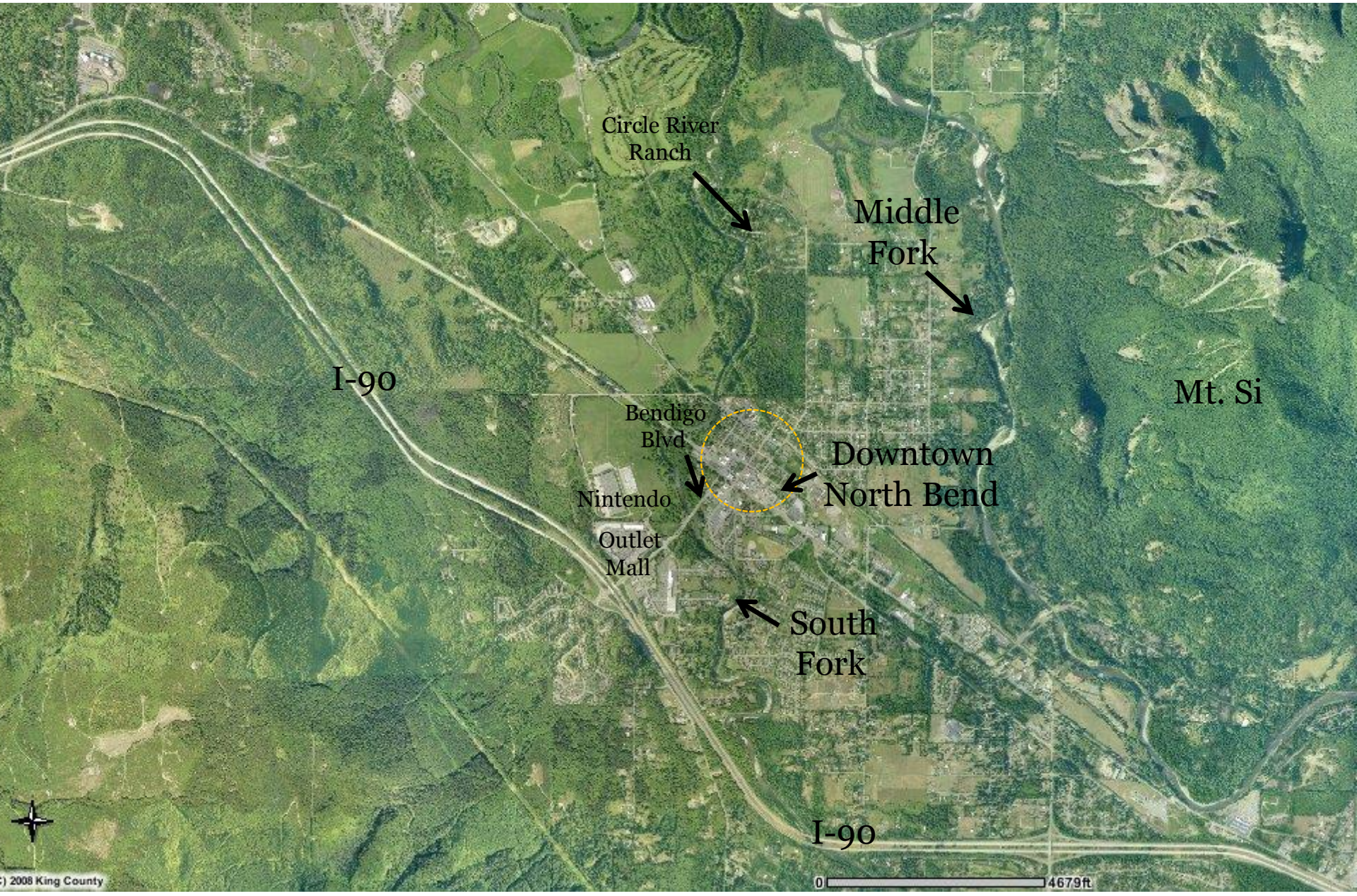
South Fork Snoqualmie River Corridor Plan

October 15, 2014 North Bend Senior Center

King County

KING COUNTY FLOOD CONTROL DISTRICT

Upper Snoqualmie Valley



South Fork Snoqualmie

- Levees constructed mid-1960s
- Different flood protection levels on left & right banks
- Levee stability problems
- Flooding issues
- Channel migration hazards in Circle River Ranch
- Gravel build up continues between levees
- Poor ecological conditions

Related South Fork Flood Mitigation Projects

Flood Event Response

15 Structure Elevations

5 Buyouts on the South Fork

Seven bank repairs plus numerous sinkhole repairs between 2006 and 2012


Chevron

Existing Conditions - Key Issues

- ≈$20 million in damages to structures & roadway projected for a 100-yr event
- $53.8 million assessed value inundated
- 144 structures and 4-miles of public roadway inundated in a 100-yr event
- Levees provide more protection to right bank (North Bend)
- Levees functioning below design capacity
- I-90 overtopping just past a 50-yr flood event
- Geotechnical instabilities somewhat less of a concern
- System ecologically degraded – channel simplified, riparian areas disconnected
- 30 Structures within channel migration hazard zone


Questions,
Discussion

Provisional Goals

Goal 1: Reduce risks from flood and channel migration hazards

- Provide 500 year flood protection in consideration of aggradation
- Eliminate high and moderate consequence geotechnical problems
- Reduce erosion and channel migration risk in areas with homes and infrastructure

Provisional Goals

Goal 2: Improve natural environment through sound and sustainable flood hazard management

- Improve aquatic habitat quality and quantity

- Improve riparian habitat functions

Provisional Goals

Goal 3: Reduce long-term costs of flood hazard management

- Implement cost-effective floodplain management solutions
- Reduce long-term maintenance and repair costs by 30%

Provisional Goals

Goal 4: Ensure Corridor Plan is consistent with King County's Equity and Social Justice Initiative.

Goal 5: Incorporate multiple objectives into the Corridor Plan through community and stakeholder involvement

Possible Corridor Approaches

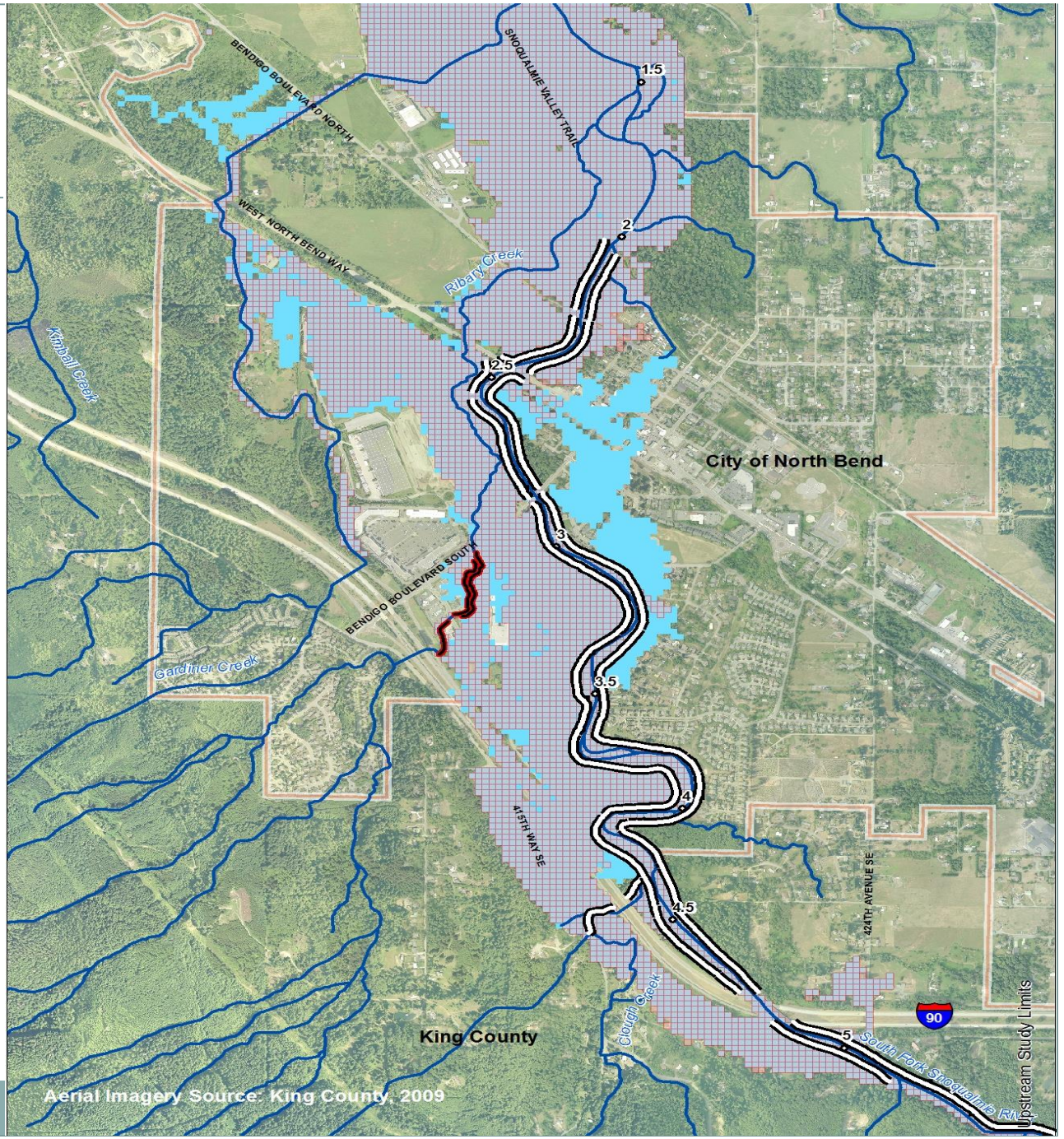
- Continue Existing Management Practices
- Raise Levees In Place
- Corridor Wide Levee Setbacks

Continue Existing
Management Practices

Continue Existing Management Practices

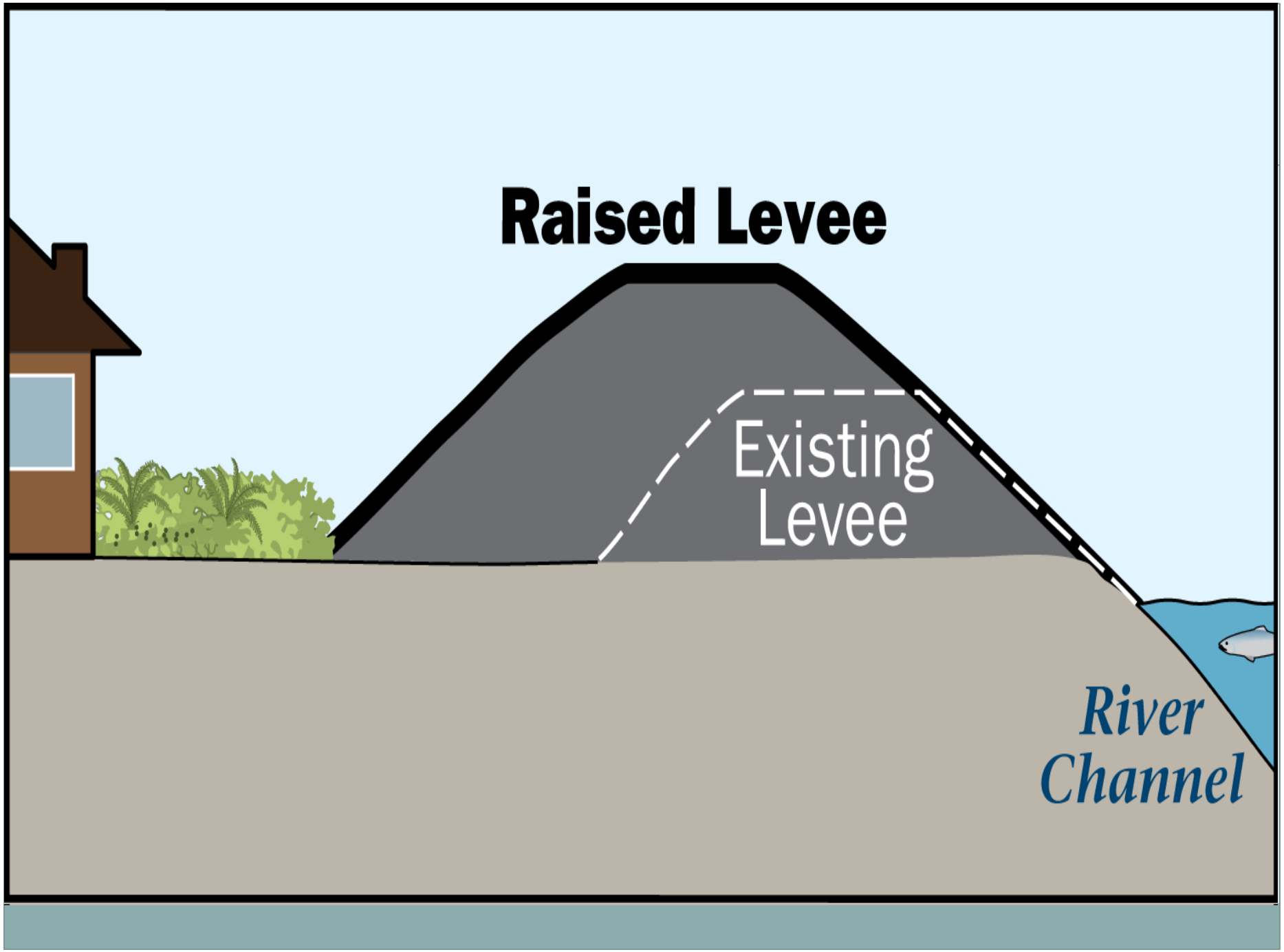
Blue areas represent new areas of flooding over time

Purple represents areas that flood now



Continue Existing Management Practices

Advantages	Drawbacks
• Low cost to implement	• Maintains substandard flood risk conditions • Increasing risk in future • Increasing long-term costs as facilities degrade • Further degrades ecological conditions

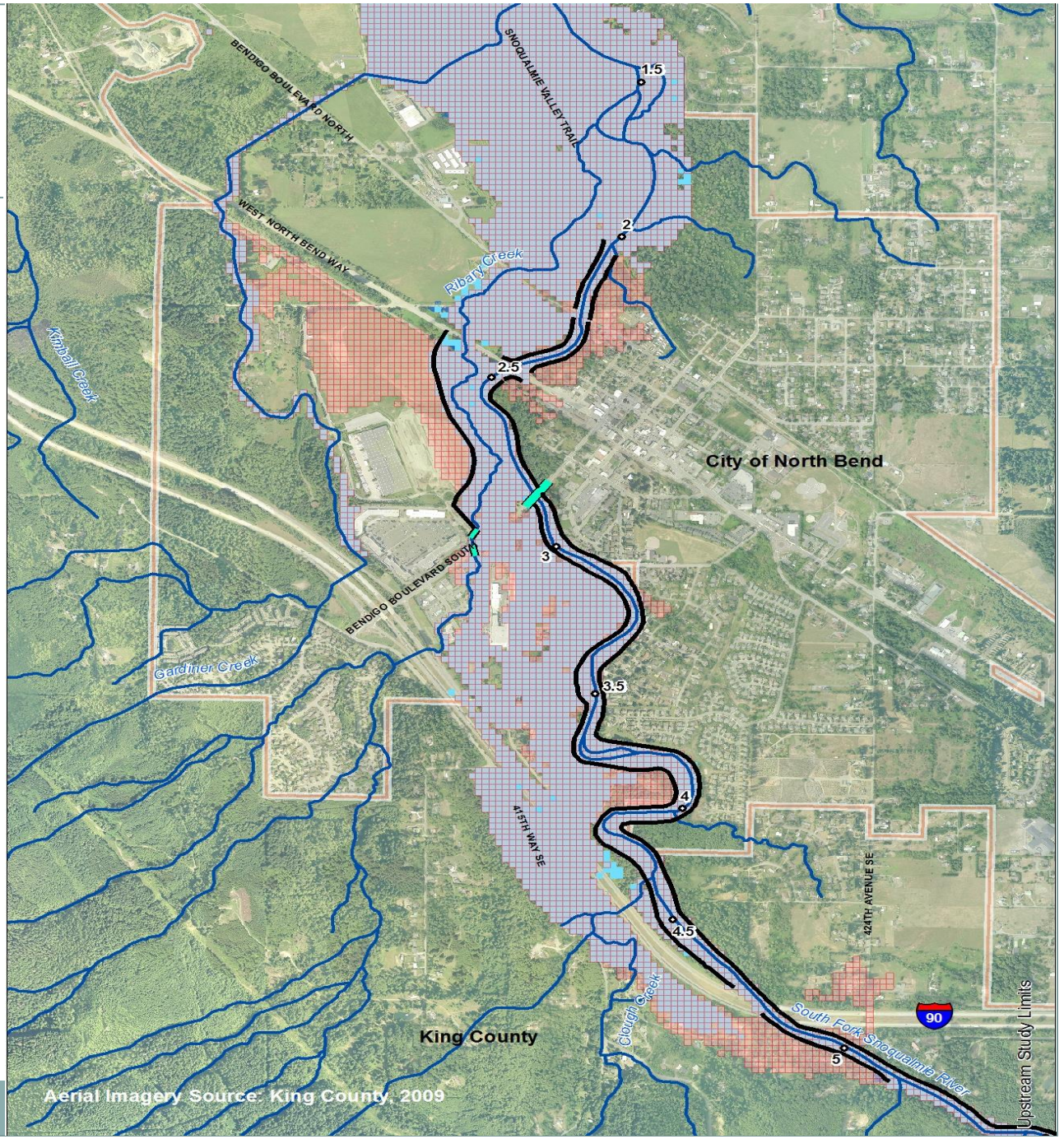

Raised Levee
Existing Levee
River Channel

Raise Levees In Place

Blue areas represent new areas of flooding over time

Purple represents areas that flood now

Red represent areas no longer flooded



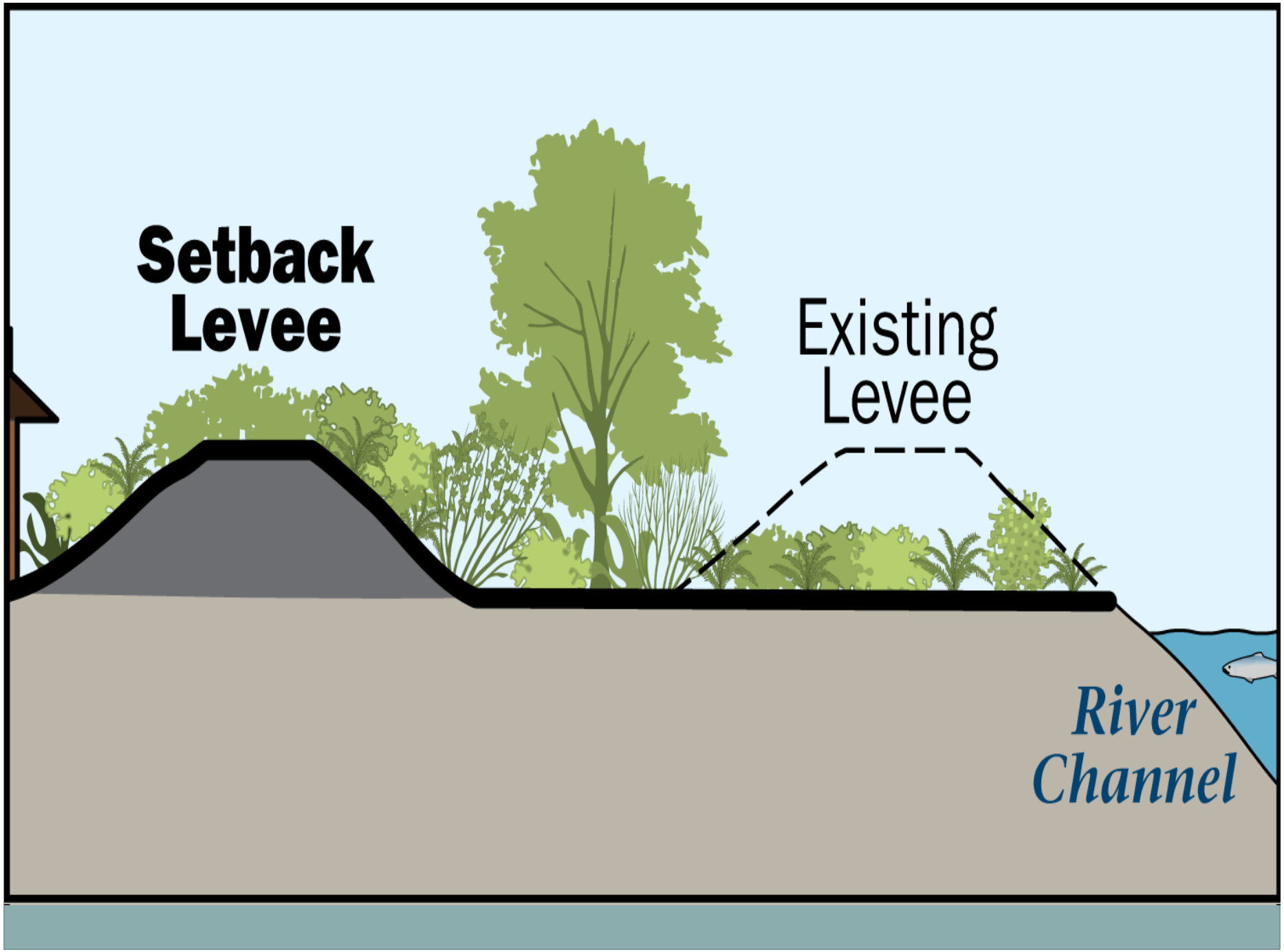
Raise Levees In Place

Advantages

- Provides some risk reduction to residences and North Bend Treatment Plant
- Preserves existing housing

Drawbacks

- Does not eliminate Interstate 90 flood risk
- Further degrades ecological conditions
- Highest downstream impacts
- Expensive to construct and maintain
- Potentially at odds with stakeholders goals

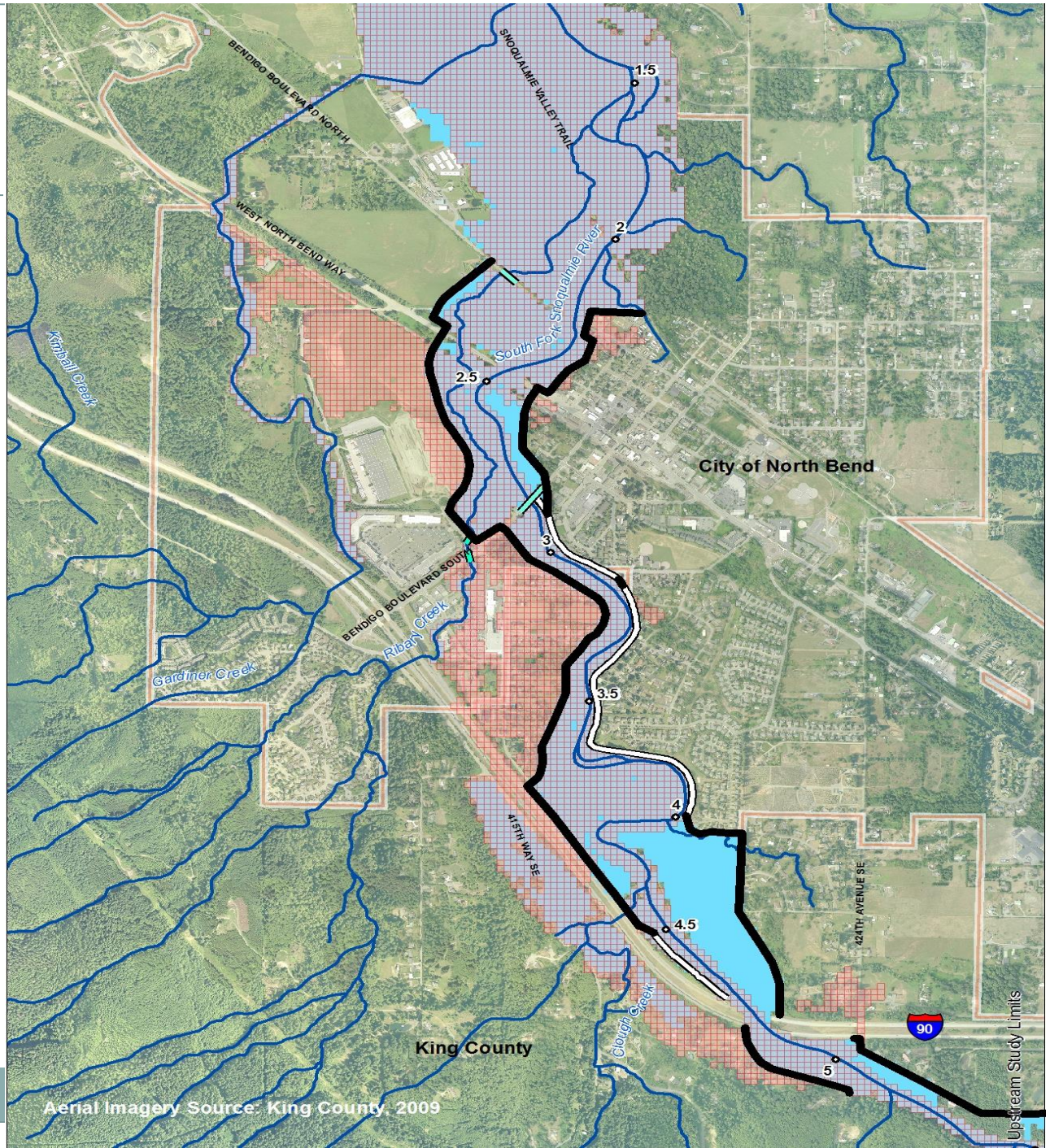

Setback Levee
Existing Levee
River Channel

Large Scale Levee Setback Approach

Blue areas represent new areas of flooding over time

Purple represents areas that flood now

Red represent areas no longer flooded



Advantages

- Effectively protects residences, businesses
- Eliminates flood risks for the North Bend Treatment Plant and Interstate 90
- Significantly improves ecological conditions
- Lower long term maintenance costs
- Consistent with goals of many stakeholder

Drawbacks

- Some downstream impacts due to containment of flows
- Expensive to construct and requires extensive real estate including buyouts of residences

Other Tools

- Structure Elevations
- New In Stream Structures (bank stabilization)
- Property Acquisition
- Gravel Removal
- Land Use Management
- Bridge, Road and Culvert Modifications


Questions,
Discussion

South Fork Snoqualmie River Corridor Plan Team

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